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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/008,531	01/16/98	RHODES	H MIO012V2
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MMC2/0705
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DAYTON OH 45402-2023

EXAMINER

EATON, K

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 07/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/008,531

Applicant(s)

RHODES, HOWARD E.

Examiner

Kurt M. Eaton

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 5/18/00 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/008,531 is acceptable and a CPA has been established.

An action on the CPA follows.

Claim Objections

2. Claim 31 is objected to because of the following informalities: the term "conductive layer" in line 6 of claim 31 should be changed to "conductive material". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 31 recites the limitation "under said conductive layer" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 21-25 and 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jost et al. (U.S. Patent No. 5,563,089).

In re claim 21, Jost et al. (U.S. Patent No. 5,563,089) (herein referred to as Jost (U.S. Patent No. 5,563,089)) shows in Figures 6-9 a process for making a semiconductor device including the steps of forming a layer of conductive material (40) having a topography that includes a substantially vertical component; and forming a contact (46) disposed adjacent to and contacting the vertical component {column 5, lines 6-35}.

In re claim 31, Jost (U.S. Patent No. 5,563,089) shows in Figures 2-9 a process for making a semiconductor device including forming a layer of conductive material (40) having a topography that includes a substantially vertical component; forming a contact (46) disposed adjacent to and contacting the vertical component; and forming a structure (12/14/18/28) having an opening (34) therein under the conductive material and filling the opening with the conductive material to form the vertical component {3, line 62 – column 5, line 35}.

In re claim 33, Jost (U.S. Patent No. 5,563,089) shows in Figures 6-9 a process for making a semiconductor device including forming a layer of conductive material (40) having a topography that includes a spacer; and forming a contact (46) disposed adjacent to and contacting the spacer {column 5, lines 6-35}.

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In re claims 22 and 32, Jost (U.S. Patent No. 5,563,089) shows wherein the vertical component defines a localized thick region in the layer of conductive material {Figure 6}.

In re claim 23, Jost (U.S. Patent No. 5,563,089) shows wherein the vertical component is a spacer {Figure 6}.

In re claims 24 and 34, Jost (U.S. Patent No. 5,563,089) shows forming a structure (28) having an opening therein under the layer of conductive material and filling the opening with the conductive material to form the vertical component and to form the spacer {Figure 6}.

In re claim 25, Jost (U.S. Patent No. 5,563,089) shows wherein the conductive material is a capacitor electrode {column 5, lines 6-26}.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 26-30 and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jost (U.S. Patent No. 5,563,089).

In re claims 26, 35, and 37, Jost (U.S. Patent No. 5,563,089) shows in Figures 2-9 a process for making a semiconductor device having an improved contact to a conductive layer including the steps of providing a first layer of material (28) and forming an opening (34) therein, wherein the opening includes sidewalls; forming a layer of a first conductive material (40) on the first layer of material and along the surfaces of the sidewalls of the opening to form a localized thick region;

forming an overlayer of material (44) on the layer of the first conductive material; forming a contact hole (45) in the overlayer which communicated with the layer of the first conductive material; and substantially filling the contact hole in the overlayer with a second conductive material (46) which contacts the first conductive material {column 3, line 62 – column 5, line 35}.

Jost (U.S. Patent No. 5,563,089) does not show wherein the second conductive material is made of a material which differs in composition from the first conductive layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the second conductive material out of a material which differs in composition since the only material requirement of Jost (U.S. Patent No. 5,563,089) concerning this layer is that the second conductive material be electrically conductive and there are many known materials within the art that are not polysilicon but are still electrically conductive. Therefore, it would have been obvious to form the second conductive material out of a material that differs in composition from the first conductive layer since the selection of a known material on the basis of its suitability for its intended use involves only routine skill in the art. Furthermore, the specification contains no disclosure of either the critical nature of the claimed material or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen materials or upon another variable recited in a claim, the applicant must show that the particular materials are critical.

In re claims 27, and 35, Jost (U.S. Patent No. 5,563,089) shows wherein the first conductive material forms spacers on the sidewalls of the opening {Figure 6}.

In re claim 28, Jost (U.S. Patent No. 5,563,089) shows wherein the second conductive material contacts at least the spacers on the sidewalls of the opening {Figure 9}

In re claims 29, and 37, Jost (U.S. Patent No. 5,563,089) shows wherein the first conductive material includes polysilicon {column 5, lines 6-11}.

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Jost (U.S. Patent No. 5,563,089) does not show wherein the second conductive material includes a metal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the second conductive material out of metal since the only material requirement of Jost (U.S. Patent No. 5,563,089) concerning this layer is that the second conductive material be electrically conductive and metal is a known material within the art that is electrically conductive. Therefore, it would have been obvious to form the second conductive material out of metal since the selection of a known material on the basis of its suitability for its intended use involves only routine skill in the art. Furthermore, the specification contains no disclosure of either the critical nature of the claimed material or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen materials or upon another variable recited in a claim, the applicant must show that the particular materials are critical.

In re claims 30, and 36, Jost (U.S. Patent No. 5,563,089) shows wherein the first layer and the overlayer include insulating materials {column 4, lines 47-57; column 5, lines 27-36}.

In re claim 38, Jost (U.S. Patent No. 5,563,089) shows wherein the first layer includes silicon dioxide and the overlayer includes BPSG {column 4, lines 24-26; column 5, lines 27-30}.

In re claim 39, Jost (U.S. Patent No. 5,563,089) shows wherein the contact hole is positioned directly above the opening and the thick region {Figure 8}.

Response to Arguments


10. Applicant's arguments with respect to claims 21-39 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

11. Paper related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication of earlier communication from the examiner should be directed to **Kurt Eaton** at **(703) 305-0383** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via kurt.eaton@uspto.gov.


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